



Handheld Terminal
BT-A600 Series
Instruction Manual

Be sure to read this instruction manual carefully prior to operating this product. After reading, keep this manual in a safe place so that you can refer to it at any time.
In this instruction manual, BT-A600 Series means the BT-A600/A600MGA/A600MGE.

Symbols

The following symbols alert you to important messages. Be sure to read these messages carefully.

	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	Indicates a situation which, if not avoided, could result in product damage as well as property damage.
	Indicates cautions and limitations that must be followed during operation.
	Indicates additional information on proper operation.
	Indicates tips for better understanding or useful information.

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There will be a charge to cover the costs of providing the source code.

Safety Precautions on Laser Product

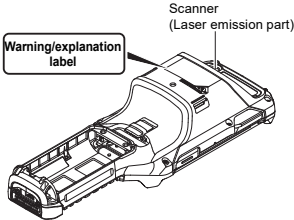
The BT-A600 Series uses a visible semiconductor laser as a light source. Follow the instructions mentioned in this manual. Otherwise, injury to the human body (eyes and skin) may result.

	Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. • Do not disassemble this product. Laser emission from this product is not automatically stopped when it is disassembled. Class 2 Laser Product • Do not stare into the direct or specularly reflected beam. • Do not direct the beam at other people or into areas where other people unconnected with the laser work might be present. • Be careful of the path of the laser beam. If there is a possibility that the operator may be exposed to the specular or diffuse reflections, block the beam by installing a protective enclosure. • Install this product so that the path of the laser beam is not as the same height as that of human eye. • Complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.
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The BT-A600 Series is classified as below in accordance with IEC60825-1.

Item	BT-A600/A600MGA/A600MGE
Wavelength	520 nm
Output	0.88 mW
Laser class	Class 2 laser product (IEC60825-1, FDA(CDRH) Part 1040.10*) * The laser classification for FDA(CDRH) is implemented based on IEC60825-1 in accordance with the requirements of Laser Notice

Locations of warning/explanation labels



Warning/explanation label

BT-A600/A600MGE	BT-A600MGA

- This equipment is not suitable for use in locations where children are likely to be present.

Safety Precautions on LED Product

The degree of risk of this product is shown below.

• Risk Group 2	
• LED product is classified as shown below according to IEC 62471.	
- Exempt Group	Does not pose any photobiological hazard
- Risk Group 1 (Low-Risk)	Does not pose a hazard due to normal behavioral limitations on exposure.
- Risk Group 2 (Moderate-Risk)	Does not pose a hazard due to the aversion response to very bright light sources or due to thermal discomfort.
- Risk Group 3 (High-Risk)	May pose a hazard even for momentary or brief exposure.

Follow the instructions mentioned in this manual. Otherwise, injury to the human body (eyes and skin) may result.

	Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. may be harmful to the eyes.	
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Safety Precautions

General cautions

	• Do not use this product for the purpose of protecting a human body or a part of human body. • This product is not intended for use as an explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere. • Do not use this product in an application that may cause death, serious injury or serious property damage due to a failure with this product should occur, such as nuclear power plants, on aircraft, trains, ships, or vehicles, used within medical equipment, playground equipment, roller coasters and other rides, etc.
	• If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
	• Be sure to check that this product performs properly before starting the work or operation. • If this product malfunctions, take adequate safety precautions to prevent various types of damage. • Do not use this product in a manner not specified herein. It may result in fire, electric shock or malfunction.
	• Do not modify this product or use it in any way other than described in the specifications. Otherwise, the functions and performance cannot be guaranteed. • The LCD panel may generate microscopic spots (black/bright spot), uneven brightness or crosstalk (phenomenon that non-existent lines or patterns are displayed), depending on the conditions. • If the same display remains on the screen for a long time, afterimage may occur due to the characteristics of LCD.

Handling of BT-A600 Series

	• Use or store this product within the temperature range described in “Specifications” (E3 page). Do not leave the product inside a closed car or at a place exposed to direct sunlight. Doing so may damage the unit or change its reading performance. • Use within the humidity range described in “Specifications” (E3 page). Do not use the product at locations where condensation occurs due to the rapid temperature change. Doing so may damage the unit or change its reading performance. • This is a precision instrument. Dropping this product or subjecting it to shock may cause damage. Be careful when carrying or using this unit. • Do not place the BT-A600 Series in a location with high humidity or a dusty area. Doing so may damage the unit or change its reading performance. • Please select a model that matches the country in which it will be used. For details, contact your nearest KEYENCE sales professional.
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Handling of BT-A600 Series main units

	Do not insert a sharp object such as a needle into the buzzer hole on the back side of the BT-A600 Series. The tarpaulin may be damaged.
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Precautions when using the rechargeable battery pack (BT-B6)

	Using batteries other than BT-B6 may cause fire or explosion. Be sure to use the specified battery.
	• Never use the rechargeable battery pack with devices other than those specified. If used with devices of which using conditions are different, the rechargeable battery pack may deteriorate earlier than expected or the devices may be damaged. • Use an AC power supply cord that coincides the shape of plug used in each country. Also, check that the cord is compliant with regulations and standards in each country.

Recycling the battery

Disposal methods of lithium ion battery differ among countries and regions. Follow the instructions in your area.
When disposing of lithium ion batteries, remaining capacity may cause heat generation, explosion or fire due to contact with other metals. Be sure to cover the positive and negative terminals with adhesive insulation tape.

Precautions on Regulations and Standards

Precautions on wireless LAN

	Remove the main battery of the BT-A600 Series near locations where using wireless devices is banned at medical institutions or near electric devices for medical purposes. Carry and use the product away from an implanted cardiac pacemaker.
	• Communication may be impossible at locations near metallic objects, locations surrounded with metallic walls, where there is a lot of metallic powder, and in similar usage environments. Be sure to check whether communication is possible prior to installation. • If this product is used near devices with the same frequency band, radio wave interference may occur and the communication speed may become slow or communication may become impossible.

CE and UKCA Markings (BT-A600/A600MGE only)

KEYENCE Corporation has confirmed, on the basis of the following specifications, that this product complies with the essential requirements of the applicable EU Directive(s) and UK regulations. Be sure to consider the following specifications when using this product in the Member States of the European Union and in the United Kingdom.
RE Directive (CE) and Radio Equipment Regulations (UKCA)
The full text of the EU declaration of conformity is available at the following internet address: <http://www.keyence.com/cedoc>
Frequency band of operation: Maximum radio-frequency power(Conducted)
BT-A600/A600MGE

WLAN	
2412-2472MHz:	19.0 dBm (79.4 mW)
5150-5350MHz:	18.5 dBm (70.8 mW)
5470-5725MHz:	19.0 dBm (79.4 mW)
5725-5850MHz:	13.5 dBm (22.4 mW)
5945-6425MHz:	18.0 dBm (63.1 mW)
Bluetooth	
2402-2480MHz:	8.5 dBm (7.1 mW)
NFC	
13.56MHz:	2 dBuA/m (3m)
GSM	
900:	34.1 dBm (2570.4 mW)
1800:	31.0 dBm (1258.9 mW)
WCDMA	
Band 1/5/8:	25 dBm (316.2 mW)
LTE	
Band 1/3/8/20/28/38:	25 dBm (316.2 mW)
Band 5/7/40/41:	24 dBm (251.2 mW)
NR	
n1/3/8/28/38/41/77/78:	24.0 dBm (251.2 mW)
n7:	24.5 dBm (281.8 mW)

Note: BT-A600MGE has WLAN/Bluetooth/GSM/WCDMA/LTE/5G NR/GNSS function.
BT-A600 only has WLAN/Bluetooth/GNSS function

Remarks: These specifications do not give any guarantee that the end-product with this product incorporated complies with the essential requirements of RE Directive and Radio Equipment Regulations. The manufacturer of the end-product is solely responsible for the compliance on the end-product itself according to this directive and these UK regulations.

This equipment should be installed and operated at least 5 mm away from your body. The device is restricted to indoor use only when operating in the 5150 to 5350 MHz and 5945 to 6425MHz frequency range.

AT	BE	BG	HR	CY	CZ	DK
EE	FI	FR	DE	EL	HU	IE
IT	LV	LT	LU	MT	NL	PL
PT	RO	SK	SI	ES	SE	UK(NI)
IS	LI	NO	CH	TR		

UL certification (BT-A600/A600MGA only)

The BT-A600 Series complies with the following UL/CSA standards and has obtained the UL/C-UL certifications.

- UL File No. E167973
- UL category AZOT/AZOT7
- Applicable standards UL 62368-1
CAN/CSA-C22.2 No. 62368-1
- This product is intended to be supplied by an UL Listed power supply and power cord suitable for use at 55°C min., the power supply output is rated: 5.3 Vdc, 3 A with marked Class II, L.P.S. or PS2, if need further assistance, please contact KEYENCE CORPORATION for further information.
- Ce produit est destiné à être alimenté par une alimentation et un cordon d'alimentation homologués UL adaptés à une utilisation à 55°C min., la sortie d'alimentation est nominale : 5.3 Vdc, 3 A avec marqué Class II, L.P.S. ou PS2, si vous avez besoin d'aide supplémentaire, veuillez contacter KEYENCE CORPORATION pour plus d'informations.

Be sure to consider the following specifications when using this product as a UL certified product. Use this product in combination with the BT-B6, which has obtained UL certification.

	RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.
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FCC Regulations (BT-A600/A600MGA only)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

- Transmitters in the 5.925-7.125 GHz band are prohibited from operating to control or communicate with unmanned aircraft systems.
- 5150-5350MHz band is restricted to indoor operations only.
- Regulatory information page is located at:
From the app list screen, Settings → About phone → Regulatory

	• This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense. • Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. • The product comply with the US portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available. • This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. • This equipment should be installed and operated at least 10 mm away from your body.
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- **ISED Regulations (BT-A600/A600MGA only)**
- This device complies with the following regulations specified by the ISED.
- Devices shall not be used for control of or communications with unmanned aircraft systems.
 - The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.
 - Operations in the 5250-5350 MHz band are restricted to indoor usage only.
 - 5600-5650 MHz band is not allowed at Canada.
 - Les dispositifs fonctionnant dans la bande de 5150- 5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.
 - Les opérations dans la bande de 5250-5350 MHz sont limitées à un usage intérieur seulement.
 - La bande de 5600-5650 MHz n'est pas autorisée au Canada.

• This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

• The product comply with the Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

• This equipment should be installed and operated at least 10 mm away from your body.

• Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

• Le produit est conforme aux limites d'exposition pour les appareils portables RF pour les Etats-Unis et le Canada établies pour un environnement non contrôlé. Le produit est sûr pour un fonctionnement tel que décrit dans ce manuel. La réduction aux expositions RF peut être augmentée si l'appareil peut être conservé aussi loin que possible du corps de l'utilisateur ou que le dispositif est réglé sur la puissance de sortie la plus faible si une telle fonction est disponible.

• Cet équipement doit être installé et utilisé à une distance d'au moins 10 mm de votre corps.

Precautions for proper use

- **Handling of packing**
- Dropping the BT-A600 Series or subjecting it to extreme shock may lead to the loss of water-proofing.

- **microSD / nano SIM card installation**
- The BT-A600 has a microSD slot and a nano SIM slot.
- 1 Turn off the main unit and remove the main battery.
- 2 Slide the desired slot cover in the direction of the arrow to unlock it, allowing the card to be inserted.
- 3 Open the slot cover.

- 4 For the nano SIM card, orient the card with its terminals at the bottom, and then place it in the slot. For the microSD card, insert the card into the slot cover so the terminals are at the bottom when the slot cover is closed, as shown in the figure.
- 5 Close the slot cover and lock it by sliding it in the direction of the arrow.
- Even when not using a micro SD or nano SIM card, be sure to close and lock the slot cover(s). The slot cover(s) may be damaged if unlocked.

Cleaning

Clean the following parts with air blow periodically.

If removing dirt is difficult, use a cotton swab to clean the contacts directly. (Use absolute ethanol if dirt is stuck on them.)

Remove the battery attachment cover before cleaning the battery contact.

If dirt or dust is attached, contact failure may occur on the battery/charging/communication contacts. This may cause charging function to deteriorate and instantaneous interruption. Make sure that waste textile is not attached to the battery/charging/communication contacts when cleaning.

- **BT-A600/A600MGA/A600MGE**
- Main unit...1 Instruction Manual...1

Specifications			
Model		BT-A600	BT-A600MGA/BT-A600MGE
Controller	CPU	Octa Core + AI-Core	
	OS	Android™	
Main Memory	Internal Memory	6GB RAM, 64GB ROM	
	LCD	4.3inch 480 x 800	
Display	Operation confirmation LED	3-color LED	
	Hard keys	36 keys (Arrow keys x 4, Trigger Keys x 3, Funktion Keys x 8, Customized keys, Data input Keys x 16, Orange key, Blue key, PW key)	
Operations	Touch Panel	Electrostatic capacitance method (Tempered glass)	



Model		BT-A600	BT-A600MGA/BT-A600MGE
Scanner	Reading light source	High-intensity white LED	
	Pointer light source	Visible light semiconductor laser (520 nm) Output 0.88 mW Class 2 laser product (IEC 60825-1)	
	Minimum resolution	2D code: 0.191mm / 1D code: 0.127mm	
	Beam divergence	0.4 rad	
	Pulse duration	9 ms	
	Repetition rate	100 Hz	
Communications	Supported codes	JAN/EAN/UPC (add-on code supported), CODE128, GS1-128, CODE39, NW-7, CODE93, ITF COOP2of5, Industrial 2of5, QR Code, MaxiCode, Aztec, Micro QR, DataMatrix (ECC200), PDF417, GS1 DataBar, Composite, Postal	
	Wireless LAN	IEEE802.11 a/b/g/n/ac/ax 2.4GHz, 5GHz, 6GHz*1	
	Bluetooth	Bluetooth Ver.5.2 BR/EDR/LE, Class 1	
	WWAN	-	5G/4G/3G, 1 nano SIM slot 1 eSIM
	GNSS	-	GPS, A-GPS, GLONASS, Beidou, QZSS, Galileo, SBAS
	NFC	ISO14443 Type A, B, Felica, ISO15693	
Power supply	USB	USB Type-C port	
	External media	micro SD/SDHC/SDXC UHS-I	
	Main battery	Dedicated lithium ion battery pack	
	RAM	Electric doubl-layer capacitors	
	Clock	Built-in lithium ion secondary battery	
	Microphone	2, noise canceling	
Others	Speaker	1 speaker, 1 receiver	
	Vibrator	Built in	
	Color camera	13MP-AF	
	Sensor	Accelerometer, gyroscope, digital compass, ambient light	
	Operating ambient temperature	-20°C ~ +50°C*2	
	Operating ambient humidity	~ 85%RH (no condensation)	
Environmental resistance	Storage ambient temperature	-20°C ~ +60°C	
	Storage ambient humidity	~ 85%RH(no condensation)	
Dimensions		233 x 80.5(48.0) x 50.4(33.0) (The value in parenthesis is the grip dimension.)	
Weight		Approx. 328 g (without Battery pack)	

*1 The usable frequency band varies depending on the region.
*2 Due to the added load in sub-zero environments, the continuous usage time may be reduced significantly. Be sure to test the device before use in these environments.

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